CLAIMS

What is claimed is:

1. A computer server rack, comprising:

a plurality of modular server chassis, each chassis configured to hold a plurality of servers and at least one data aggregator coupled to each server in the same chassis via a point to point link;

at least one group of AC to DC power supplies;

a power bus bar configured to transmit power from the power supplies to a power backplane in each server chassis;

wherein DC power is provided to each server in the rack through the power bus bar and the power backplane located in the same chassis.

2. The computer server rack of claim 1 further comprising:

a second group of AC to DC power supplies configured to transmit power to the power backplane in each server chassis through the power bus bar;

wherein DC power from both the first and the second groups of AC to DC power supplies is provided to each server in the rack through the power bus bar and the power backplane located in the same chassis.

3. The computer server rack of claim 2 wherein servers in a chassis are coupled to a network by coupling the aggregator in the same rack to the network.

4. The computer server rack of claim 3 wherein the aggregator is an IP network switch.

5. The computer server rack of claim 3 wherein the aggregator is an Infiniband network switch.

6. The computer server rack of claim 3 wherein each server chassis further comprises:

a second aggregator coupled to each server in the same chassis via a redundant copy of the point to point link between the first aggregator and each server in the same chassis.

7. An method for providing data and power connectivity to a plurality of rack mount servers comprising:

housing each server in a chassis;

housing a first network switch in each chassis;

coupling the first switch to each server in the same chassis with a point to point network link;

housing a plurality of chassis in a rack;

housing a plurality of power supplies in the rack;

transmitting power from the power supplies to a power bus bar;

transmitting power from the power bus bar to each chassis; and

connecting servers in separate chassis to the same network by coupling the switches in those chassis to one another.

8. The method of claim 7 further comprising:

housing a second network switch in each chassis; and

coupling the second switch to each server in the chassis with the same point to point network link as between each server in the chassis and the first network link.

9. The method of claim 8 further comprising:

enclosing each server in a blade enclosure.

10. The method of claim 9 further comprising:

subdividing the power supplies into at least two groups;

transmitting power from each group of power supplies to a separate power transmission line in the bus bar;

transmitting power from each power transmission line to each server and switch in each chassis through a power backplane at the rear of each chassis.

11. The method of claim 9 further comprising:

coupling a power connector at the rear of each server blade enclosure with a mating power connector on the power backplane;

12. The method of claim 9, further comprising:

encapsulating the point to point links in a data backplane; and

coupling a data connector at the rear of each server blade enclosure with a mating server data connector on the data backplane.

13. The method of claim 12, further comprising:

coupling a switch connector at the rear of the switches with a mating switch data connector on the data backplane; and

coupling the switches in separate chassis using a data cable.

14. The method of claim 7, further comprising:

connecting servers in different racks by coupling switches in those racks using a single data cable.

15. The method of claim 7, further comprising:

connecting servers in a chassis to a network by coupling the switches in those chassis to the network.

16. A modular server chassis installable in a rack and configured to hold a plurality of servers comprising:

a plurality of server slots, each server slot configured to accept a server encased in a server blade;

a plurality of network device slots, each network device slot configured to accept a network device;

a data backplane; and

a power backplane;

wherein network connectivity for each server is provided through point to point links in the data backplane between each server slot and each network device slot.

17. The server chassis of claim 16 wherein the server and network device slots are vertical slots.

18. The server chassis of claim 16 wherein;

the power backplane is configured to transmit power from a plurality of redundant power supplies to each server and network device slot.

19. The server chassis of claim 18 wherein;

the power backplane further comprises a fuse between the power supply and each device slot.

20. The server chassis of claim 18 wherein;

the power backplane further comprises a VHDM connector for each server slot and each network device slot configured to mate with a mating connector on the server blades and network devices to transmit power to the server blades and network devices.

21. The server chassis of claim 16 wherein the point to point links in the data backplane comprise:

an Ethernet link;

an infiniband link; and

a server management link.

22. The server chassis of claim 21 wherein;

the data backplane further comprises a VHDM connector for each server slot and network device slot configured to mate with a mating connector on the server blades and network devices to transmit signals along the point to point links between the server blades and network devices.

23. The server chassis of claim 17 wherein the server chassis holds 8 server blades, each blade having a 1U width and two switches.

24. The server chassis of claim 23 wherein the server chassis has a 6U vertical height.